

## CLAIMS:

1. Scintillation layer (10, 20, 30) for a PET-detector with a curved internal surface (12, 22) and/or a curved outer surface (13, 23), comprising a plurality of scintillation elements (11, 21, 31a, 31b) that are joined together with minimal gaps and that are oriented towards the centre of curvature (14, 24, 34) of the scintillation layer.  
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2. Scintillation layer (10) according to claim 1, characterized in that it is cylindrically curved and that it comprises scintillation elements (11) having the form of a truncated wedge.
- 10 3. Scintillation layer (20) according to claim 1, characterized in that it is curved in an ellipsoidal way and that it comprises scintillation elements (21) having the form of a truncated pyramid.
4. Scintillation layer (10, 20, 30) according to claim 1, characterized in that  
15 gaps between neighbouring scintillation elements (11, 21, 31) are filled with a reflecting material.
5. PET-detector with a scintillation layer (10, 20, 30), the scintillation layer having a curved internal surface (12, 22) and/or a curved outer surface (13, 23)  
20 and comprising a plurality of scintillation elements (11, 21, 31a, 31b) that are joined together with minimal gaps and that are oriented towards the centre of curvature (14, 24, 34) of the scintillation layer.
6. PET-detector according to claim 5, characterized in that the scintillation  
25 layer (10, 20, 30) is designed according to one of claims 2 to 4.

7. Procedure for the production of a scintillation layer (10, 20, 30) for a PET-detector by joining a plurality of scintillation elements (11, 21, 31a, 31b) with minimal gaps, the scintillation elements being shaped in such a way that the resulting scintillation layer (10, 20, 30) is curved and that the scintillation elements (11, 21, 31a, 31b) are oriented towards the centre of curvature (14, 24, 34) of the scintillation layer.

8. Procedure according to claim 7, characterized in that the resulting scintillation layer (10, 20, 30) is designed according to one of claims 2 to 4.

10 9. Procedure according to claim 7, characterized in that the scintillation elements (11, 31a, 31b) are cut from scintillation crystals.

10. Procedure according to claim 7, characterized in that the scintillation elements (21) are produced by press-forming of ceramic scintillation materials.

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